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Emerging Opportunities for Wind Development to Meet Objectives of Supplemental Environmental Projects and State Implementation Plans

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EMERGING OPPORTUNITIES FOR WIND DEVELOPMENT TO MEET OBJECTIVES OF SUPPLEMENTAL ENVIRONMENTAL PROJECTS AND STATE IMPLEMENTATION PLANS

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Abstract

Policies within the U.S. Environmental Protection Agency (EPA) provide an important opportunity for the development of wind technology. To mitigate all or part of a penalty imposed as a result of an emissions violation, state and federal environmental enforcement attorneys are beginning to consider the inclusion of wind projects as Supplemental Environmental Projects (SEPs) when settling cases.

In addition, states must prepare State Implementation Plans (SIPs) to comply with the national ambient air quality standards program of the Clean Air Act. Among other things, state SIPs must include plans for lowering emissions; wind can play a role in meeting these standards.

This paper describes the emerging opportunities for wind resource development in meeting SEP and SIP objectives.

Introduction

Wind projects offer a unique opportunity to provide a sustained and quantifiable contribution to meeting the U.S. Environmental Protection Agency (EPA) objectives. EPA policies provide both near-term and long-term opportunities that support wind project development. Two specific mechanisms, Supplemental Environmental Projects (SEPs) and State Implementation Plans (SIPs), provide tremendous opportunities for supporting wind energy development. Wind technology can be used to satisfy enforcement actions through SEPs; it can also play a role in multi-pollutant prevention as part of a SIP.

Under the Windpowering America objectives, the U.S. Department of Energy (DOE) and the National Renewable Energy Laboratory (NREL) are working with states to develop wind-related SEPs. These are environmental projects that a defendant can volunteer to fund instead of paying the full amount of a negotiated civil penalty as a result of an emission violation under EPA regulations. SEPs can be viewed as a capitalization tool for wind development. DOE/NREL is working hard to support the development of wind SEPs at the state and federal levels, with the expectation that these successful examples will be used to foster replication of wind SEPs across the country.

Under separate policy, the EPA requires states to develop SIPs to comply with the National Ambient Air Quality Standards program of the Clean Air Act. Wind projects can contribute to meeting these standards.

This paper describes the EPA's SEP policy and its beneficiaries, opportunities to integrate wind in federal and state SEPs, examples of wind-related SEP projects, and the roles of stakeholders in wind energy SEPs.

EPA's Supplemental Environmental Project Policy

The objective of the federal EPA SEP policy is to assist in promoting EPA's program goals by securing environmental or public health protection and improvements that go beyond those benefits achieved by compliance with applicable laws. Under EPA's SEP policy, companies are encouraged to fund environmentally beneficial projects to mitigate all or part of penalties imposed as a result of an emissions violation. SEPs are applicable to all civil judicial and administrative enforcement actions and are an alternative to standard fines in enforcement actions. Participation in such a supplemental environmental project is voluntary. Because SEPs must result in direct environmental benefits, they can provide pollution prevention and environmental justice.

Enforcement actions take place at the federal and state levels. States are responsible for implementing this policy to handle state-specific violations. State-specific penalties typically range from $10,000 to $500,000. Federal penalties can amount to millions of dollars.

Purpose of EPA SEP Policy

"The primary purpose of this Policy is to encourage and obtain environmental and public health protection and improvements that **may not otherwise have occurred** without the settlement incentives provided by this Policy."[1]

Generally, SEP funds cannot be used to support projects that are required by legislative or regulatory bodies, such as meeting renewable portfolio standards, for example. Further, projects already planned by the defendant are not eligible. SEP funds provide resources that would not otherwise be available. They can be used to support the development of a project that would otherwise not be economically viable or one in which financing may be difficult, such as on tribal lands.

In specific cases, however, "SEPs may include activities which the defendant/respondent will become legally obligated to undertake two or more years in the future, if the project will result in the facility coming into compliance earlier than the deadline."[2]

If public notice is made about the project, the violator must explicitly indicate the project was done in response to an enforcement action. To help ensure the violator does not realize economic gain from a SEP, a multiplier is calculated and applied to the penalty to take into consideration all expected financial benefits (such as the federal Production Tax Credit or Renewable Energy Production Incentive, tax benefits, other incentives or subsidies, gains from sale of commodity, etc.). Although the multiplier is often 1.5 or 2, as a result of all the benefits that are available to wind projects, the penalty multiplier could be as high as 5. Therefore, for example, a $1 million penalty could result in a project investment of up to $5 million.

Beneficiaries of SEPs

In the case of an enforcement action, stakeholders potentially interested in the contributions of a wind project include the violator, state energy office, state or federal environmental agency, local or state economy, and the wind industry. The environment and affected population also benefit from these projects.

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1 EPA Supplemental Environmental Projects Policy. Effective May 1, 1998; emphasis added.

2 Ibid.

Violator
For the violator, supporting a SEP can provide public relations benefits as well as tax and financial benefits realized from investing in a project instead of paying a fine. Financial benefits might include reduced materials and waste disposal costs, or productivity gains. By investing in a SEP, the violator can report the costs and gains to its shareholders as normal operating activities instead of reporting an enforcement penalty.

State Energy Office
In the case of a state enforcement action, the State Energy Office (SEO) benefits from funds that can be used to lower the cost for wind projects that might not be financially viable. The use of off-budget funds provides a means of deploying more wind energy than otherwise would occur. The funds can be used to underwrite projects that would likely otherwise go unfunded. These outcomes enhance the SEO's ability to fulfill its mission, which is to facilitate and accelerate the deployment of clean energy technologies.

Environmental Agency
SEPs provide an opportunity to help meet environmental objectives, either at the federal or state level. The SEP funds help support environmental projects that might not otherwise have occured. Wind projects, for example, improve both the short- and long-term ambient air quality.

Economic Benefits
The local and state economy can benefit from wind SEPs. In addition to typical development benefits of taxes on capital investments and small numbers of short-term and long-term employee additions, depending on the size of the project, the project might lead to the development of wind industry companies in-state, bringing with it sustained employment, property and other tax revenues, etc. This, in turn, results in secondary and tertiary benefits accruing from economic multiplier effects. To the extent that wind energy contributes to a cleaner environment, it is part of the overall package that can attract new commerce to a locale.

Wind Industry
Wind projects can be supported with SEP funds. Wind developments can be supported in locations that may have less than optimal wind resources or lack of purchasers for the green attributes. The energy does not have to be marketed with a premium because the SEP funds would offset the higher costs of the project. Projects can be developed in places where the economics are marginal.

Environmental and Affected Population Benefits
The environment benefits because wind is essentially environmentally benign, generating no air or water emissions. Wind SEPs can aid in reducing overall emissions, especially if the generation displaces fossil-fueled resources such as coal or natural gas. In addition, the SEP can be cross-media (i.e. water or soil violations can be settled by a SEP that impacts air quality). Depending on the location of the projects in relation to the affected population, there may be some direct benefits to the affected population in the form of reduced emissions.

Opportunities for Federal SEPs

EPA plays an active role in settlement discussions if it determines the need to overfile on a state case (that is, reopen a case if it does not agree with how the state handled it), when the violation crosses multiple states, or when it decides to pursue specific initiatives. The EPA is currently involved in a national initiative that involves enforcement actions against power plant owners in violation of the New Source Review (NSR) policy. Generally, if a power plant is modified, it may be subject to the NSR rules. The

EPA has cases pending against numerous power plants across the country in which power plant modifications were made, but the plant owners did not submit these modifications for review. When settled, these cases will likely have penalty amounts associated with them that are far greater than the typical state enforcement action.

In enforcement cases, there is generally a jurisdictional requirement for a nexus–a relationship between the violation and the proposed project. A SEP can meet the violation nexus in one of three ways: 1) reduce the likelihood of a similar violation, 2) reduce adverse impact to public health or the environment to which the violation contributed, or 3) reduce the overall risk to public health or the environment potentially affected by the violation. Wind projects provide a good match when Clean Air Act violations are involved, such as power plant emissions. Because the EPA is currently engaged in an initiative that targets NSR violations, there is a tremendous opportunity for wind SEPs. Even though the nexus may not be as clear, wind projects can also be a good match when non-air violations are involved.

In 1999, EPA SEPs amounted to $277 million. No clean energy projects were done; a few compressed natural gas projects were done. Wind projects would make excellent SEPs because they result in the reduction of all regulated and unregulated air emissions. Currently, however, the EPA policy does not explicitly identify renewable energy technologies as SEP options. DOE/NREL has been working with EPA to develop a guidance memo to explicitly support renewable SEPs. It is anticipated that this memo will be distributed to all EPA regional offices this year.

To date, at least two EPA regions are actively considering clean energy SEPs. EPA Region 1 (New England) has developed descriptive flyers for Clean Air Projects that would be acceptable in this region. The list includes Energy Efficiency Upgrades, Commuter Choice, Garden Roof (to reduce energy costs by providing cooling in the summer and insulation in the winter), Alternative Fuel Vehicles, Fuel Cells, Energy Efficiency Traffic Lights, Particulate Trap (to capture diesel emissions), and renewable energy purchase (from wind or solar). DOE/NREL has been working directly with Region 8 (Rocky Mountain), providing technical assistance and information on renewables as requested.

Opportunities for State SEPs

States across the country have environmental violations that could result in wind-related SEPs. Like federal SEPs, state SEPs are environmentally beneficial projects that a violator may voluntarily invest in as a way to mitigate all or part of penalties imposed as a result of an emissions violation. SEP funds may provide an off-budget source of funds to support wind project development, especially in states where System Benefit Charges do not exist. As with the federal policy, SEPs cannot provide any economic benefit to the violator. A multiplier is used to ensure no such gain is realized.

Based on the DOE/NREL Windpowering America objectives, the near term goal is to realize a wind-related SEP in each DOE region. The DOE/NREL is at various stages of discussion with at least 25 states. By DOE region, the following states have been contacted:

- Atlanta Region: AL, GA, NC
- Boston Region: NY
- Chicago Region**:** IL, MI, MO, OH
- Denver Region: KS, MT, ND, NE, NM, OK, SD, TX, UT, WY
- Philadelphia Region: VA, WV
- Seattle Region: AK, AZ, HI, ID, NV

Colorado Example

To date, only the state of Colorado, through its Department of Public Health & Environment, Air Pollution Division, has negotiated a clean energy SEP. The Colorado SEP Policy is fairly consistent with the EPA SEP policy. However, it was modified prior to the successful negotiation of the wind SEP to explicitly support renewable projects.

In the Colorado SEP, the violator is mitigating 80% of a civil penalty resulting from an air emissions violation by purchasing green tags from a wind project for five years. The SEP amount is just over $300,000. These monies were put in an interest-bearing escrow account at the local utility to be used to pay for the premium associated with wind energy. To receive credit for the SEP, the violator had to certify that this SEP was developed exclusively for the mitigation of the violation. In this case, a wind turbine was added to the local utility's existing wind farm to support the SEP. This additional turbine was not otherwise planned; therefore certification was met.

Renewable Energy Technology (RET) SEPs

Recognizing the link between energy production using fossil-fueled technologies and the corresponding emissions, the opportunities for wind projects to be used to offset emissions violations seem strong. Over the past year and a half, DOE and NREL staff have been working with state and federal agencies to help identify near-term opportunities to develop wind SEPs and provide support to these agencies as they consider the possibility of wind projects.

A number of wind-related SEP concepts have been developed. These concepts include:

1. **Purchase wind-generated or other renewable energy power (or green tags) for violator's consumption or use.** The penalty is placed in an escrow account with the power provider or green tag broker to pay for the power or tags over a specified time. Earnings on the escrow account are invested in additional power or green tags.

2. **Buy down the renewable energy cost "premium" for a project that otherwise would be uneconomical to develop and, therefore, would not occur.** This approach can be especially attractive if the "developer" is a community or school or some other kind of governmental or volunteer organization interested in "clean and green." Where wind energy is not quite cost-competitive, the premium is generally not exorbitant but is sufficient to create a barrier to project development.

3. **Establish a buy-down fund for renewable energy projects.** The fund subsidizes initial investment in projects to supplement the energy supplies of local or state agencies. Renewable energy projects can be installed at schools, community centers, libraries, and other government buildings. This permits maximum flexibility in siting REPs, which is useful if state regulations require SEPs to be undertaken at or near the site of the environmental violation.

4. **If a generation and transmission provider (G&T) is the violator, invest in a member co-op mini-wind farm.** This will allow the co-op to acquire needed experience with wind energy. It also would provide the co-op's customers with a measure of clean energy, plus price-hedging and other benefits of greater fuel diversity.

5. **Purchase or buy down green tags for groups that philosophically support "green" but are unlikely to be able to purchase green tags.** Examples of such groups might include Low Income Home Energy Assistance Program (LIHEAP) recipients, senior citizen centers, faith-based organizations, or

hospitals and nursing homes, schools and colleges, etc. SEP funds can be placed in an escrow account to pay the specified green tags over an agreed-upon time.

6. **Fund development of a high-resolution map of the state's wind resources.** High-resolution maps can be one of the first steps in exploring the opportunity for developing wind energy projects. Absence of these maps can constitute a barrier to wind development.

7. **Establish a fund to support the initial assessment costs of wind projects.** SEP funds are pooled and used to underwrite a feasibility study, without which the projects cannot go forward. Feasibility studies include assessment of environmental impacts, economic benefits, interconnection issues, and financing.

8. **Fund a local or statewide anemometer loan program**. SEP funds purchase anemometers that are made available for loan. This reduces the cost of the site assessment phase of wind development projects and contributes to improved project economics.

9. **Fund a wind technician assistance center at a university.** This could be funded in connection with the anemometer loan program and could be managed by a university, perhaps through the agricultural extension service. This program could boost the development of clean energy and the resulting environmental benefits.

10. **If a utility is the violator, invest in a professional green energy marketing campaign through a third party** (such as the Land and Water Fund of the Rockies). This targeted marketing can be used to provide discounted or fully subsidized green tags to disadvantaged groups. SEP funds can be placed in an escrow account with the third party managing the activity, ensuring that the utility does not benefit from this activity.

StEPP–A Creative Program for Funding Wind Projects

The Strategic Environmental Project Pipeline (StEPP) Foundation is a mechanism that can be used for funding wind SEPs. Begun in Colorado because the primary funding source is the Colorado Department of Public Health and Environment, the program will likely expand to the national, and perhaps international, level. Although any organization or individual can apply for StEPP, funding for governmental and non-profit organizations are given priority. StEPP can be used to develop wind projects in response to state or federal level enforcement actions. Defendants can select from projects in the pipeline and enforcement penalties can be added to the foundation to support project development.

EPA's State Implementation Plan Policy

SIPs are developed by states to provide for implementation, maintenance, and enforcement of primary and secondary standards for each air quality control region (or portion thereof) within the state. SIP Title 42, Chapter 85, Subchapter I, Part A, Section 7410 of the U.S. Code Collection provides the guidance for State Implementation Plans for complying with the federal Clean Air Act. SIPs are used for air quality planning; the state develops implementation plans for criteria air pollutants.

SIPs are required under Title I of Clean Air Act of 1990–Attainment/Maintenance of National Ambient Air Quality Standards (NAAQS). The production of energy from burning fossil fuels significantly contributes to these criteria pollutants. If the EPA designates an area as non-attainment for NAAQS or issues a SIP call, it will require the state to revise its SIP. In addition, many states are looking at potential greenhouse gas impacts or regional haze issues. One example of this is the Grand Canyon Visibility

Transport Commission (GCVTC). Under the GCVTC, a SIP will be due from each state to protect and improve visibility in national parks and wilderness areas. Nine states in GCVTC need to work on, among other things, emission reductions for stationary source (including power plants). In each of these cases, states will be working to revise their SIPs.

Emission Reductions

Most SIPs rely on emissions reductions or "credits" in order to meet NAAQS. These reductions must be permanent, enforceable, quantifiable, and surplus-that is, in addition to other reduction requirements. Both energy efficiency and renewable energy (EERE) technologies can be incorporated into SIPs to meet these goals. To date, however, this hasn't happened.

Quantifying Credit for EE/RE in SIPs

The EPA is developing models to quantify EERE credits in SIPs. These models will estimate the amount of energy saved or displaced from EERE technologies and then convert these to emission reductions. As the EPA works on these quantification solutions, the opportunity for wind projects to play a role in SIPs is being discussed. One of the first tests will be in the Texas SIP that is currently being developed. Energy efficiency is the primary focus; however, renewable energy technologies are also being considered for the plan.

DOE/NREL-NWTC Role

DOE/NREL is discussing opportunities to consider the use of wind projects as SEPs in response to enforcement actions at the federal and state levels. DOE/NREL's role is to help educate the EPA and the states (state energy and environmental agencies) about the contribution wind projects can make to meeting SEP objectives, supporting the development of wind SEPs, and assisting in the replication of wind SEPs across the country.

Working with National Organizations and States

To support wind projects in SEPs and SIPs, DOE/NREL is providing support, as requested, to states and regional EPA offices. The support includes general information, high-resolution maps, and technical assistance. An internal NREL work group (EE/RE Air Quality Work Group) includes DOE, NREL (various organizations), and EPA. The purpose of this group is to coordinate and collaborate with the EPA in identifying opportunities for renewable energy technologies to meet the agency's SEP and SIP policy objectives. Presentations have been made at the Environmental Council of the States (ECOS), State and Territorial Air Pollution Program Administrators (STAPPA) and the Association of Local Air Pollution Control Officers (ALAPCO), the National Association of State Energy Officials (NASEO), the EPA Air Directors' meeting, Energy and Environment meeting, and other forums to present information on these developing opportunities and to reach out to these organizations to encourage them to inform their constituents of opportunities. DOE/NREL is also working with states in all DOE regions, providing information and technical support as requested.

Working with EPA

DOE/NREL is working with some EPA regional offices, EPA Office of Air Quality Planning and Standards (OAQPS), and Office of Enforcement and Compliance Assurance (OECA) to explore opportunities for renewable energy technologies to meet SEP and SIP policy objectives, providing information and technical support as requested.

In working with EPA, Region 8, DOE/NREL has provided information on wind technology in general, as well as information on specific technical issues. NREL continues to make its resources available to EPA Region 8 and will respond to similar requests from other EPA regions as they are made.

DOE/NREL has provided input to OAQPS's Innovative Strategies, a guidance document that supports the inclusion of EERE technologies in SIPs. The document establishes a framework for state incentives to consider EERE technologies. OAQPS is currently working with the Texas Natural Resource Conservation Commission as it develops its SIP. Issues continue to revolve around quantifying emission reductions of EE and consideration of RE in the plan.

The OECA is trying to promote clean energy SEPs by releasing a guidance memo explicitly supporting renewable energy. The distribution of a guidance memo from the OECA to regional EPA offices would do much to foster the consideration of wind projects as SEPs. Although this memo has not yet been distributed by OECA, it is anticipated the effects of such a memo will do much to encourage the consideration of wind projects as SEPs.

Wind Industry Role

The wind industry must continue to develop projects that are successes to be in position to take advantage of the SIP and SEP opportunities. Wind projects need to be technically sound and environmentally benign. Projects with real or perceived environmental concerns, such as visual impacts, noise, and avian impacts, may negatively influence the opportunity for wind developments to meet policy objectives for SIPs and SEPs.

The wind industry should also position itself to: 1) work directly with the violator, if needed; 2) work with StEPP to submit projects to the pipeline; and 3) work with green power marketers to provide green tags for violators to purchase as SEPs.

Conclusions

There are tremendous opportunities for wind project development that would not otherwise have happened in the absence of the SEP funds. Wind projects should also be able to play a role in SIPs.

DOE/NREL has been working with the EPA to revise policies to explicitly allow for wind projects as SEPs. This activity is taking place at the state, regional, and federal level. Simultaneously, DOE/NREL is working with EPA on protocols for quantifying the emissions displaced as a result of wind development and policies for quantifying emission reductions in SIPs. Wind projects developed as a result of SEPs or SIPs can provide benefits for a wide range of stakeholders, including the violator, state energy office, state or federal environmental agency, local or state economy, and the wind industry. The environment and affected population also benefit from these projects.

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http://www.steppfoundation.org/

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In addition, states must prepare State Implementation Plans (SIPs) to comply with the national ambient air quality standards program of the Clean Air Act. Among other things, state SIPs must include plans for lowering emissions; wind can play a role in meeting these standards.

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